WHAT IS CLAIMED IS:

1.   A method for determining the position of a user terminal, comprising:

receiving at the user terminal a broadcast television signal from a television signal transmitter;

determining a first pseudo-range between the user terminal and the television signal transmitter based on a known component of the broadcast television signal;

receiving at the user terminal a mobile telephone signal from a mobile telephone base station;

determining a second pseudo-range between the user terminal and the mobile telephone base station based on a known component of the mobile telephone signal; and

determining a position of the user terminal based on the first and second pseudo-ranges, a location of the television signal transmitter, and a location of the mobile telephone base station;

wherein the mobile telephone signal is selected from the group consisting of

a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) signal;

a Code-Division Multiple Access 2000 (cdma2000) signal; and

a Wideband Code-Division Multiple Access (WCDMA) signal.

2.   The method of claim 1, wherein the known component of the mobile telephone signal is selected from the group consisting of:

a training sequence;

an unmodulated PN sequence;

a preselected spreading code in a beacon channel of the mobile telephone signal; and

a codeword in a synchronization channel of the mobile telephone signal.

3.   The method of claim 1, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal; .

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

an analog television signal.

4.   The method of claim 1, further comprising:

receiving at the user terminal a global positioning signal from a global positioning satellite;

determining a third pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

determining a position of the user terminal based on the first, second and third pseudo-ranges, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

5.   A method for determining the position of a user terminal, comprising:

receiving at the user terminal a broadcast television signal from a television signal transmitter;

determining a pseudo-range between the user terminal and the television signal transmitter based on a known component of the broadcast television signal;

receiving at the user terminal a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) mobile telephone signal from a mobile telephone base station, the mobile telephone signal comprising a timing advance parameter;

determining a range between the user terminal and the mobile telephone base station based on the timing advance parameter; and

determining a position of the user terminal based on the pseudo-range, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

6.   The method of claim 5, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

5   an analog television signal.

7.   The method of claim 5, further comprising:

determining a second pseudo-range between the user terminal and the mobile telephone base station based on a known component of the mobile telephone signal; and

10   determining a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

8.   The method of claim 7, further comprising:

15   receiving at the user terminal a global positioning signal from a global positioning satellite;

determining a third pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

determining a position of the user terminal based on the first, second and third

20   pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

9.   The method of claim 5, further comprising:

receiving at the user terminal a global positioning signal from a global positioning

25   satellite;

determining a second pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

determining a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile

30   telephone base station, and a location of the global positioning satellite.

10.   A method for determining the position of a user terminal, comprising:

receiving at the user terminal a broadcast television signal from a television signal transmitter;

determining a first pseudo-range between the user terminal and the television signal transmitter based on a known component of the broadcast television signal;

receiving at the user terminal a mobile telephone signal from a mobile telephone base station;

determining a second pseudo-range between the user terminal and the mobile telephone base station based on a known component of the mobile telephone signal; and

transmitting the first and second pseudoranges to a location server configured to determine a position of the user terminal based on the first and second pseudo-ranges, a location of the television signal transmitter, and a location of the mobile telephone base station;

wherein the mobile telephone signal is selected from the group consisting of

a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) signal;

a Code-Division Multiple Access 2000 (cdma2000) signal; and

a Wideband Code-Division Multiple Access (WCDMA) signal.

11.   The method of claim 10, wherein the known component of the mobile telephone signal is selected from the group consisting of:

a training sequence;

an unmodulated PN sequence;

a preselected spreading code in a beacon channel of the mobile telephone signal; and

a codeword in a synchronization channel of the mobile telephone signal.

12.   The method of claim 10, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

5 an analog television signal.

13. The method of claim 10, further comprising:

receiving at the user terminal a global positioning signal from a global positioning satellite;

10 determining a third pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

transmitting the first, second and third pseudoranges to a location server configured to determine a position of the user terminal based on the first, second and third pseudo-ranges, a location of the television signal transmitter, a location of the mobile telephone base station,

15 and a location of the global positioning satellite.

14. A method for determining the position of a user terminal, comprising:

receiving at the user terminal a broadcast television signal from a television signal transmitter;

20 determining a pseudo-range between the user terminal and the television signal transmitter based on a known component of the broadcast television signal;

receiving at the user terminal a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) mobile telephone signal from a mobile telephone base station, the mobile telephone signal comprising a timing advance parameter;

25 determining a range between the user terminal and the mobile telephone base station based on the timing advance parameter; and

transmitting the pseudorange and the range to a location server configured to determine a position of the user terminal based on the pseudorange, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

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15.   The method of claim 14, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

an analog television signal.

16.   The method of claim 14, further comprising:

determining a second pseudo-range between the user terminal and the mobile telephone base station based on a known component of the mobile telephone signal; and

transmitting the first and second pseudo-ranges and the range to a location server configured to determine a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

17.   The method of claim 16, further comprising:

receiving at the user terminal a global positioning signal from a global positioning satellite;

determining a third pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

transmitting the first, second and third pseudo-ranges and the range to a location server configured to determine a position of the user terminal based on the first, second and third pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

18.   The method of claim 14, further comprising:

receiving at the user terminal a global positioning signal from a global positioning satellite;

determining a second pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

transmitting the first and second pseudo-ranges and the range to a location server configured to determine a position of the user terminal based on the first and second pseudo-

5   ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

19.   A method for determining the position of a user terminal, comprising:

receiving a first pseudo-range from the user terminal, the first pseudo-range

10   determined between the user terminal and a television signal transmitter based on a known component of a broadcast television signal transmitted by the television signal transmitter;

receiving a second pseudo-range from the user terminal, the second pseudo-range determined between the user terminal and a mobile telephone base station based on a known component of a mobile telephone signal transmitted by the mobile telephone base station;

15   and

determining a position of the user terminal based on the first and second pseudo-ranges, a location of the television signal transmitter, and a location of the mobile telephone base station;

wherein the mobile telephone signal is selected from the group consisting of

20   a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) signal;

a Code-Division Multiple Access 2000 (cdma2000) signal; and

a Wideband Code-Division Multiple Access (WCDMA) signal.

25   20.   The method of claim 19, wherein the known component of the mobile telephone signal is selected from the group consisting of:

a training sequence;

an unmodulated PN sequence;

a preselected spreading code in a beacon channel of the mobile telephone signal; and

30   a codeword in a synchronization channel of the mobile telephone signal.

21.   The method of claim 19, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

an analog television signal.

22.   The method of claim 19, further comprising:

receiving a third pseudo-range between the user terminal and a global positioning satellite based on a global positioning signal transmitted by the global positioning satellite; and

determining a position of the user terminal based on the first, second and third pseudo-ranges, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

23.   A method for determining the position of a user terminal, comprising:

receiving a pseudo-range between the user terminal and a television signal transmitter, the pseudo-range determined based on a known component of a broadcast television signal transmitted by the television signal transmitter;

receiving a range between the user terminal and a mobile telephone base station, the range determined based on a timing advance parameter in a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) mobile telephone signal transmitted by the mobile telephone base station; and

determining a position of the user terminal based on the pseudorange, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

24.   The method of claim 23, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video
Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

an analog television signal.

25.   The method of claim 23, further comprising:

receiving a second pseudo-range between the user terminal and the mobile telephone base station, the second pseudo-range determined based on a known component of the mobile telephone signal; and

determining a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

26.   The method of claim 25, further comprising:

receiving a third pseudo-range between the user terminal and the global positioning satellite, the third pseudo-range determined based on a global positioning signal transmitted by the global positioning satellite; and

determining a position of the user terminal based on the first, second and third pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

27.   The method of claim 23, further comprising:

receiving a second pseudo-range between the user terminal and a global positioning satellite, the second pseudo-range determined based on a global positioning signal transmitted by the global positioning satellite; and

determining a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

28.   Computer-readable media embodying instructions executable by a computer to perform a method for determining the position of a user terminal, the method comprising:

determining a first pseudo-range between the user terminal and a broadcast television signal transmitter based on a known component of a broadcast television signal received at the user terminal from the television signal transmitter;

determining a second pseudo-range between the user terminal and a mobile telephone base station based on a known component of a mobile telephone signal received at the user terminal from the mobile telephone base station; and

determining a position of the user terminal based on the first and second pseudo-ranges, a location of the television signal transmitter, and a location of the mobile telephone base station;

wherein the mobile telephone signal is selected from the group consisting of

a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) signal;

a Code-Division Multiple Access 2000 (cdma2000) signal; and

a Wideband Code-Division Multiple Access (WCDMA) signal.

29.   The media of claim 28, wherein the known component of the mobile telephone signal is selected from the group consisting of:

a training sequence;

an unmodulated PN sequence;

a preselected spreading code in a beacon channel of the mobile telephone signal; and

a codeword in a synchronization channel of the mobile telephone signal.

30.   The media of claim 28, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

5   an analog television signal.

31.   The media of claim 28, wherein the method further comprises:

determining a third pseudo-range between the user terminal and a global positioning satellite based on a global positioning signal received at the user terminal from the global

10   positioning satellite; and

determining a position of the user terminal based on the first, second and third pseudo-ranges, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

15   32.   Computer-readable media embodying instructions executable by a computer to perform a method for determining the position of a user terminal, the method comprising:

determining a pseudo-range between the user terminal and a television signal transmitter based on a known component of a broadcast television signal received at the user terminal from the television signal transmitter;

20   receiving at the user terminal a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) mobile telephone signal from a mobile telephone base station, the mobile telephone signal comprising a timing advance parameter;

determining a range between the user terminal and the mobile telephone base station based on the timing advance parameter; and

25   determining a position of the user terminal based on the pseudo-range, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

33.   The media of claim 32, wherein the broadcast television signal is selected

30   from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

5   an analog television signal.

34.   The media of claim 32, wherein the method further comprises:

determining a second pseudo-range between the user terminal and the mobile telephone base station based on a known component of the mobile telephone signal; and

10   determining a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

35.   The media of claim 34, wherein the method further comprises:

15   determining a third pseudo-range between the user terminal and a global positioning satellite based on a global positioning signal received at the user terminal from the global positioning satellite; and

determining a position of the user terminal based on the first, second and third pseudo-ranges, the range, a location of the television signal transmitter, a location of the

20   mobile telephone base station, and a location of the global positioning satellite.

36.   The media of claim 32, wherein the method further comprises:

determining a second pseudo-range between the user terminal and a global positioning satellite based on a global positioning signal received at the user terminal from

25   the global positioning satellite; and

determining a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

37. Computer-readable media embodying instructions executable by a computer to perform a method for determining the position of a user terminal, the method comprising:

determining a first pseudo-range between the user terminal and a television signal transmitter based on a known component of a broadcast television signal received at the user terminal from the television signal transmitter;

determining a second pseudo-range between the user terminal and a mobile telephone base station based on a known component of a mobile telephone signal received at the user terminal from the mobile telephone base station; and

causing the user terminal to transmit the first and second pseudoranges to a location server configured to determine a position of the user terminal based on the first and second pseudo-ranges, a location of the television signal transmitter, and a location of the mobile telephone base station;

wherein the mobile telephone signal is selected from the group consisting of

a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) signal;

a Code-Division Multiple Access 2000 (cdma2000) signal; and

a Wideband Code-Division Multiple Access (WCDMA) signal.

38. The media of claim 37, wherein the known component of the mobile telephone signal is selected from the group consisting of:

a training sequence;

an unmodulated PN sequence;

a preselected spreading code in a beacon channel of the mobile telephone signal; and

a codeword in a synchronization channel of the mobile telephone signal.

39. The media of claim 37, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and an analog television signal.

40.   The media of claim 37, wherein the method further comprises:

determining a third pseudo-range between the user terminal and a global positioning satellite based on a global positioning signal received at the user terminal from the global positioning satellite; and

causing the user terminal to transmit the first, second and third pseudoranges to a location server configured to determine a position of the user terminal based on the first, second and third pseudo-ranges, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

41.   Computer-readable media embodying instructions executable by a computer to perform a method for determining the position of a user terminal, the method comprising:

determining a pseudo-range between the user terminal and a television signal transmitter based on a known component of a broadcast television signal received at the user terminal from the television signal transmitter;

determining a range between the user terminal and a mobile telephone base station based on a timing advance parameter in a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) mobile telephone signal received at the user terminal from the mobile telephone base station; and

causing the user terminal to transmit the pseudorange and the range to a location server configured to determine a position of the user terminal based on the pseudorange, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

42.   The media of claim 41, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

an analog television signal.

43.   The media of claim 41, wherein the method further comprises:

determining a second pseudo-range between the user terminal and the mobile telephone base station based on a known component of the mobile telephone signal; and

causing the user terminal to transmit the first and second pseudo-ranges and the range to a location server configured to determine a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

44.   The media of claim 43, wherein the method further comprises:

determining a third pseudo-range between the user terminal and a global positioning satellite based on a global positioning signal received at the user terminal from the global positioning satellite; and

causing the user terminal to transmit the first, second and third pseudo-ranges and the range to a location server configured to determine a position of the user terminal based on the first, second and third pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

45.   The media of claim 41, wherein the method further comprises:

determining a second pseudo-range between the user terminal and a global positioning satellite based on a global positioning signal received at the user terminal from the global positioning satellite; and

causing the user terminal to transmit the first and second pseudo-ranges and the range to a location server configured to determine a position of the user terminal based on the first

and second pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

46.   Computer-readable media embodying instructions executable by a computer to perform a method for determining the position of a user terminal, the method comprising:

determining a position of the user terminal based on

a first pseudo-range determined between the user terminal and a television signal transmitter based on a known component of a broadcast television signal transmitted by the television signal transmitter,

a second pseudo-range determined between the user terminal and a mobile telephone base station based on a known component of a mobile telephone signal transmitted by the mobile telephone base station,

a location of the television signal transmitter, and

a location of the mobile telephone base station;

wherein the mobile telephone signal is selected from the group consisting of

a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) signal;

a Code-Division Multiple Access 2000 (cdma2000) signal; and

a Wideband Code-Division Multiple Access (WCDMA) signal.

47.   The media of claim 46, wherein the known component of the mobile telephone signal is selected from the group consisting of:

a training sequence;

an unmodulated PN sequence;

a preselected spreading code in a beacon channel of the mobile telephone signal; and

a codeword in a synchronization channel of the mobile telephone signal.

48.   The media of claim 46, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

an analog television signal.

49.   The media of claim 46, wherein the method further comprises:

determining a position of the user terminal based on

the first and second pseudo-ranges,

a third pseudo-range determined between the user terminal and a global positioning satellite based on a global positioning signal transmitted by the global positioning satellite,

a location of the television signal transmitter,

a location of the mobile telephone base station, and

a location of the global positioning satellite.

50.   Computer-readable media embodying instructions executable by a computer to perform a method for determining the position of a user terminal, the method comprising:

determining a position of the user terminal based on

a pseudo-range determined between the user terminal and a television signal transmitter based on a known component of a broadcast television signal transmitted by the television signal transmitter,

a range determined between the user terminal and a mobile telephone base station based on a timing advance parameter in a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) mobile telephone signal transmitted by the mobile telephone base station,

the pseudorange,

the range,

a location of the television signal transmitter, and

a location of the mobile telephone base station.

51.   The media of claim 50, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

an analog television signal.

52.   The media of claim 50, wherein the method further comprises:

determining a position of the user terminal based on

the first pseudo-range,

a second pseudo-range determined between the user terminal and a mobile telephone base station based on a known component of a mobile telephone signal received at the user terminal from the mobile telephone base station,

a location of the television signal transmitter, and

a location of the mobile telephone base station.

53.   The media of claim 52, wherein the method further comprises:

determining a position of the user terminal based on

the first and second pseudo-ranges,

a third pseudo-range determined between the user terminal and a global positioning satellite based on a global positioning signal transmitted by the global positioning satellite,

a location of the television signal transmitter,

a location of the mobile telephone base station, and

a location of the global positioning satellite.

54.   The media of claim 50, wherein the method further comprises:

determining a position of the user terminal based on

the first second pseudo-range,

a second pseudo-range determined between the user terminal and a global positioning satellite based on a global positioning signal transmitted by the global positioning satellite,

a location of the television signal transmitter,

a location of the mobile telephone base station, and

a location of the global positioning satellite.

55.   An apparatus for determining the position of a user terminal, comprising:

a receiver to receive at the user terminal a broadcast television signal from a television signal transmitter;

a processor to determine a first pseudo-range between the user terminal and the television signal transmitter based on a known component of the broadcast television signal;

wherein the receiver receives at the user terminal a mobile telephone signal from a mobile telephone base station;

wherein the processor determines a second pseudo-range between the user terminal and the mobile telephone base station based on a known component of the mobile telephone signal; and

wherein the processor determines a position of the user terminal based on the first and second pseudo-ranges, a location of the television signal transmitter, and a location of the mobile telephone base station;

wherein the mobile telephone signal is selected from the group consisting of

a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) signal;

a Code-Division Multiple Access 2000 (cdma2000) signal; and

a Wideband Code-Division Multiple Access (WCDMA) signal.

56.   The apparatus of claim 55, wherein the known component of the mobile telephone signal is selected from the group consisting of:

a training sequence;

an unmodulated PN sequence;

a preselected spreading code in a beacon channel of the mobile telephone signal; and

a codeword in a synchronization channel of the mobile telephone signal.

57. The apparatus of claim 55, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

an analog television signal.

58. The apparatus of claim 55, wherein:

the receiver receives at the user terminal a global positioning signal from a global positioning satellite;

the processor determines a third pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

the processor determines a position of the user terminal based on the first, second and third pseudo-ranges, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

59. An apparatus for determining the position of a user terminal, comprising:

a receiver to receive at the user terminal a broadcast television signal from a television signal transmitter;

a processor to determine a pseudo-range between the user terminal and the television signal transmitter based on a known component of the broadcast television signal;

wherein the receiver receives at the user terminal a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) mobile telephone signal from a mobile telephone base station, the mobile telephone signal comprising a timing advance parameter;

wherein the processor determines a range between the user terminal and the mobile telephone base station based on the timing advance parameter; and

wherein the processor determines a position of the user terminal based on the pseudo-range, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

60.   The apparatus of claim 59, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

an analog television signal.

61.   The apparatus of claim 59, wherein:

the processor determines a second pseudo-range between the user terminal and the mobile telephone base station based on a known component of the mobile telephone signal; and

the processor determines a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

62.   The apparatus of claim 61, wherein:

the receiver receives at the user terminal a global positioning signal from a global positioning satellite;

the processor determines a third pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

the processor determines a position of the user terminal based on the first, second and third pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

63.   The apparatus of claim 59, wherein:

the receiver receives at the user terminal a global positioning signal from a global positioning satellite;

the processor determines a second pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

the processor determines a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

64.   An apparatus for determining the position of a user terminal, comprising:

a receiver to receive at the user terminal a broadcast television signal from a television signal transmitter;

a processor to determine a first pseudo-range between the user terminal and the television signal transmitter based on a known component of the broadcast television signal;

wherein the receiver receives at the user terminal a mobile telephone signal from a mobile telephone base station;

wherein the processor determines a second pseudo-range between the user terminal and the mobile telephone base station based on a known component of the mobile telephone signal; and

a transmitter to transmitting the first and second pseudoranges to a location server configured to determine a position of the user terminal based on the first and second pseudo-ranges, a location of the television signal transmitter, and a location of the mobile telephone base station;

wherein the mobile telephone signal is selected from the group consisting of

a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) signal;

a Code-Division Multiple Access 2000 (cdma2000) signal; and

a Wideband Code-Division Multiple Access (WCDMA) signal.

65.   The apparatus of claim 64, wherein the known component of the mobile telephone signal is selected from the group consisting of:

a training sequence;

an unmodulated PN sequence;

a preselected spreading code in a beacon channel of the mobile telephone signal; and

a codeword in a synchronization channel of the mobile telephone signal.

66.   The apparatus of claim 64, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

an analog television signal.

67.   The apparatus of claim 64, wherein:

the receiver receives at the user terminal a global positioning signal from a global positioning satellite;

the processor determines a third pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

the transmitter transmits the first, second and third pseudoranges to a location server configured to determine a position of the user terminal based on the first, second and third pseudo-ranges, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

68.   An apparatus for determining the position of a user terminal, comprising:

a receiver to receive at the user terminal a broadcast television signal from a television signal transmitter;

a processor to determine a pseudo-range between the user terminal and the television signal transmitter based on a known component of the broadcast television signal;

wherein the receiver receives at the user terminal a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) mobile telephone signal from a mobile telephone base station, the mobile telephone signal comprising a timing advance parameter;

wherein the processor determines a range between the user terminal and the mobile telephone base station based on the timing advance parameter; and

a transmitter to transmit the pseudorange and the range to a location server configured to determine a position of the user terminal based on the pseudorange, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

69. The apparatus of claim 68, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and an analog television signal.

70. The apparatus of claim 68, wherein:

the processor determines a second pseudo-range between the user terminal and the mobile telephone base station based on a known component of the mobile telephone signal; and

the transmitter transmits the first and second pseudo-ranges and the range to a location server configured to determine a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

71. The apparatus of claim 70, wherein:

the receiver receives at the user terminal a global positioning signal from a global positioning satellite;

the processor determines a third pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

the transmitter transmits the first, second and third pseudo-ranges and the range to a location server configured to determine a position of the user terminal based on the first, second and third pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

72.   The apparatus of claim 68, wherein:

the receiver receives at the user terminal a global positioning signal from a global positioning satellite;

the processor determines a second pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

the transmitter transmits the first and second pseudo-ranges and the range to a location server configured to determine a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

73.   An apparatus for determining the position of a user terminal, comprising:

a receiver to receive a first pseudo-range from the user terminal, the first pseudo-range determined between the user terminal and a television signal transmitter based on a known component of a broadcast television signal transmitted by the television signal transmitter;

wherein the receiver receives a second pseudo-range from the user terminal, the second pseudo-range determined between the user terminal and a mobile telephone base station based on a known component of a mobile telephone signal transmitted by the mobile telephone base station; and

a processor to determine a position of the user terminal based on the first and second pseudo-ranges, a location of the television signal transmitter, and a location of the mobile telephone base station;

wherein the mobile telephone signal is selected from the group consisting of

a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) signal;

a Code-Division Multiple Access 2000 (cdma2000) signal; and

a Wideband Code-Division Multiple Access (WCDMA) signal.

74.   The apparatus of claim 73, wherein the known component of the mobile telephone signal is selected from the group consisting of:

a training sequence;

an unmodulated PN sequence;

a preselected spreading code in a beacon channel of the mobile telephone signal; and

a codeword in a synchronization channel of the mobile telephone signal.

75.   The apparatus of claim 73, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

an analog television signal.

76.   The apparatus of claim 73, wherein:

the receiver receives a third pseudo-range between the user terminal and a global positioning satellite based on a global positioning signal transmitted by the global positioning satellite; and

the processor determines a position of the user terminal based on the first, second and third pseudo-ranges, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

77.   An apparatus for determining the position of a user terminal, comprising:

a receiver to receive a pseudo-range between the user terminal and a television signal transmitter, the pseudo-range determined based on a known component of a broadcast television signal transmitted by the television signal transmitter;

wherein the receiver receives a range between the user terminal and a mobile

5   telephone base station, the range determined based on a timing advance parameter in a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) mobile telephone signal transmitted by the mobile telephone base station; and

a processor to determine a position of the user terminal based on the pseudorange, the range, a location of the television signal transmitter, and a location of the mobile telephone

10   base station.

78.   The apparatus of claim 77, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

15   a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and an analog television signal.

20   79.   The apparatus of claim 77, wherein:

the receiver receives a second pseudo-range between the user terminal and the mobile telephone base station, the second pseudo-range determined based on a known component of the mobile telephone signal; and

the processor determines a position of the user terminal based on the first and second

25   pseudo-ranges, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

80.   The apparatus of claim 79, wherein:

the receiver receives a third pseudo-range between the user terminal and the global positioning satellite, the third pseudo-range determined based on a global positioning signal transmitted by the global positioning satellite; and

the processor determines a position of the user terminal based on the first, second and third pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

81.   The apparatus of claim 77, wherein:

the receiver receives a second pseudo-range between the user terminal and a global positioning satellite, the second pseudo-range determined based on a global positioning signal transmitted by the global positioning satellite; and

the processor determines a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

82.   An apparatus for determining the position of a user terminal, comprising:

receiver means for receiving at the user terminal a broadcast television signal from a television signal transmitter;

processor means for determining a first pseudo-range between the user terminal and the television signal transmitter based on a known component of the broadcast television signal;

wherein the receiver means receives at the user terminal a mobile telephone signal from a mobile telephone base station;

wherein the processor means determines a second pseudo-range between the user terminal and the mobile telephone base station based on a known component of the mobile telephone signal; and

wherein the processor means determines a position of the user terminal based on the first and second pseudo-ranges, a location of the television signal transmitter, and a location of the mobile telephone base station;

wherein the mobile telephone signal is selected from the group consisting of

a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) signal;

a Code-Division Multiple Access 2000 (cdma2000) signal; and

a Wideband Code-Division Multiple Access (WCDMA) signal.

83. The apparatus of claim 82, wherein the known component of the mobile telephone signal is selected from the group consisting of:

a training sequence;

an unmodulated PN sequence;

a preselected spreading code in a beacon channel of the mobile telephone signal; and

a codeword in a synchronization channel of the mobile telephone signal.

84. The apparatus of claim 82, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

an analog television signal.

85. The apparatus of claim 82, wherein:

the receiver means receives at the user terminal a global positioning signal from a global positioning satellite;

the processor means determines a third pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

the processor means determines a position of the user terminal based on the first, second and third pseudo-ranges, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

86. An apparatus for determining the position of a user terminal, comprising:

receiver means for receiving at the user terminal a broadcast television signal from a television signal transmitter;

processor means for determining a pseudo-range between the user terminal and the television signal transmitter based on a known component of the broadcast television signal;

5   wherein the receiver means receives at the user terminal a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) mobile telephone signal from a mobile telephone base station, the mobile telephone signal comprising a timing advance parameter;

wherein the processor means determines a range between the user terminal and the

10   mobile telephone base station based on the timing advance parameter; and

wherein the processor means determines a position of the user terminal based on the pseudo-range, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

15   87.   The apparatus of claim 86, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

20   a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and an analog television signal.

88.   The apparatus of claim 86, wherein:

the processor means determines a second pseudo-range between the user terminal and

25   the mobile telephone base station based on a known component of the mobile telephone signal; and

the processor means determines a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

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89. The apparatus of claim 88, wherein:

the receiver means receives at the user terminal a global positioning signal from a global positioning satellite;

the processor means determines a third pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

the processor means determines a position of the user terminal based on the first, second and third pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

90. The apparatus of claim 86, wherein:

the receiver means receives at the user terminal a global positioning signal from a global positioning satellite;

the processor means determines a second pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

the processor means determines a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

91. An apparatus for determining the position of a user terminal, comprising:

receiver means for receiving at the user terminal a broadcast television signal from a television signal transmitter;

processor means for determining a first pseudo-range between the user terminal and the television signal transmitter based on a known component of the broadcast television signal;

wherein the receiver means receives at the user terminal a mobile telephone signal from a mobile telephone base station;

wherein the processor means determines a second pseudo-range between the user terminal and the mobile telephone base station based on a known component of the mobile telephone signal; and

transmitter means for transmitting the first and second pseudoranges to a location server configured to determine a position of the user terminal based on the first and second pseudo-ranges, a location of the television signal transmitter, and a location of the mobile telephone base station;

wherein the mobile telephone signal is selected from the group consisting of
a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) signal;
a Code-Division Multiple Access 2000 (cdma2000) signal; and
a Wideband Code-Division Multiple Access (WCDMA) signal.

92. The apparatus of claim 91, wherein the known component of the mobile telephone signal is selected from the group consisting of:
a training sequence;
an unmodulated PN sequence;
a preselected spreading code in a beacon channel of the mobile telephone signal; and
a codeword in a synchronization channel of the mobile telephone signal.

93. The apparatus of claim 91, wherein the broadcast television signal is selected from the group comprising:
an American Television Standards Committee (ATSC) digital television signal;
a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;
a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and
an analog television signal.

94. The apparatus of claim 91, wherein:
the receiver means receives at the user terminal a global positioning signal from a global positioning satellite;
the processor means determines a third pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

the transmitter means transmits the first, second and third pseudoranges to a location server configured to determine a position of the user terminal based on the first, second and third pseudo-ranges, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

5

95.   An apparatus for determining the position of a user terminal, comprising:

receiver means for receiving at the user terminal a broadcast television signal from a television signal transmitter;

processor means for determining a pseudo-range between the user terminal and the

10   television signal transmitter based on a known component of the broadcast television signal;

wherein the receiver means receives at the user terminal a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) mobile telephone signal from a mobile telephone base station, the mobile telephone signal comprising a timing advance parameter;

15   wherein the processor means determines a range between the user terminal and the mobile telephone base station based on the timing advance parameter; and

transmitter means for transmitting the pseudorange and the range to a location server configured to determine a position of the user terminal based on the pseudorange, the range, a location of the television signal transmitter, and a location of the mobile telephone base

20   station.

96.   The apparatus of claim 95, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

25   a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and an analog television signal.

30   97.   The apparatus of claim 95, wherein:

the processor means determines a second pseudo-range between the user terminal and the mobile telephone base station based on a known component of the mobile telephone signal; and

the transmitter means transmits the first and second pseudo-ranges and the range to a location server configured to determine a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

98. The apparatus of claim 97, wherein:

the receiver means receives at the user terminal a global positioning signal from a global positioning satellite;

the processor means determines a third pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

the transmitter means transmits the first, second and third pseudo-ranges and the range to a location server configured to determine a position of the user terminal based on the first, second and third pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

99. The apparatus of claim 95, wherein:

the receiver means receives at the user terminal a global positioning signal from a global positioning satellite;

the processor means determines a second pseudo-range between the user terminal and the global positioning satellite based on the global positioning signal; and

the transmitter means transmits the first and second pseudo-ranges and the range to a location server configured to determine a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

100. An apparatus for determining the position of a user terminal, comprising:

receiver means for receiving a first pseudo-range from the user terminal, the first pseudo-range determined between the user terminal and a television signal transmitter based on a known component of a broadcast television signal transmitted by the television signal transmitter;

5   wherein the receiver means receives a second pseudo-range from the user terminal, the second pseudo-range determined between the user terminal and a mobile telephone base station based on a known component of a mobile telephone signal transmitted by the mobile telephone base station; and

processor means for determining a position of the user terminal based on the first and 10   second pseudo-ranges, a location of the television signal transmitter, and a location of the mobile telephone base station;

wherein the mobile telephone signal is selected from the group consisting of

a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) signal;

15   a Code-Division Multiple Access 2000 (cdma2000) signal; and

a Wideband Code-Division Multiple Access (WCDMA) signal.

101.   The apparatus of claim 100, wherein the known component of the mobile telephone signal is selected from the group consisting of:

20   a training sequence;

an unmodulated PN sequence;

a preselected spreading code in a beacon channel of the mobile telephone signal; and

a codeword in a synchronization channel of the mobile telephone signal.

25   102.   The apparatus of claim 100, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

30   a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

an analog television signal.

103.   The apparatus of claim 100, wherein:

the receiver means receives a third pseudo-range between the user terminal and a global positioning satellite based on a global positioning signal transmitted by the global positioning satellite; and

the processor means determines a position of the user terminal based on the first, second and third pseudo-ranges, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

104.   An apparatus for determining the position of a user terminal, comprising:

receiver means for receiving a pseudo-range between the user terminal and a television signal transmitter, the pseudo-range determined based on a known component of a broadcast television signal transmitted by the television signal transmitter;

wherein the receiver means receives a range between the user terminal and a mobile telephone base station, the range determined based on a timing advance parameter in a EDGE (Enhanced Data Rates for Global System for Mobile Communications (GSM) Evolution) mobile telephone signal transmitted by the mobile telephone base station; and

processor means for determining a position of the user terminal based on the pseudorange, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

105.   The apparatus of claim 104, wherein the broadcast television signal is selected from the group comprising:

an American Television Standards Committee (ATSC) digital television signal;

a European Telecommunications Standards Institute (ETSI) Digital Video Broadcasting - Terrestrial (DVB-T) signal;

a Japanese Integrated Services Digital Broadcasting-Terrestrial (ISDB-T) signal; and

an analog television signal.

106. The apparatus of claim 104, wherein:

the receiver means receives a second pseudo-range between the user terminal and the mobile telephone base station, the second pseudo-range determined based on a known component of the mobile telephone signal; and

the processor means determines a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, and a location of the mobile telephone base station.

107. The apparatus of claim 106, wherein:

the receiver means receives a third pseudo-range between the user terminal and the global positioning satellite, the third pseudo-range determined based on a global positioning signal transmitted by the global positioning satellite; and

the processor means determines a position of the user terminal based on the first, second and third pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.

108. The apparatus of claim 104, wherein:

the receiver means receives a second pseudo-range between the user terminal and a global positioning satellite, the second pseudo-range determined based on a global positioning signal transmitted by the global positioning satellite; and

the processor means determines a position of the user terminal based on the first and second pseudo-ranges, the range, a location of the television signal transmitter, a location of the mobile telephone base station, and a location of the global positioning satellite.